

Lipomatous hypertrophy of the interatrial septum: A benign heart anomaly that may complicate transseptal puncture

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We present a case of a 72-year-old male with tachycardia-induced cardiomyopathy related to persistent atrial fibrillation with accompanying lipomatous hypertrophy of the interatrial septum (LHIS) successfully treated with cryoablation of pulmonary veins.

The patient's symptoms included palpitations, dyspnoea on exertion, and peripheral edema. Previous cardioversions had been ineffective. The patient was overweight (body mass index: 31 kg/m²), with a past medical history of chronic coronary syndrome treated by percutaneous coronary intervention of the circumflex artery, hypertension, hyperlipidemia, chronic kidney disease stage G3B, type 2 diabetes mellitus, hyperthyroidism, and radioactive iodine therapy. Left ventricular ejection fraction was estimated at 37%. The electrocardiogram revealed atrial fibrillation with a rapid ventricular rate (100–120 beats per minute) and normal cardiac axis.

The patient was electively admitted to the Cardiology Department for cryoballoon pulmonary veins isolation. Initial transesophageal echocardiography (TEE), performed to rule out a left atrial appendage thrombus, showed significant thickening of the interatrial septum (Figure 1A). Due to this anomaly, a transseptal puncture was performed under TEE guidance, which allowed accurate visualization and proper positioning of the transseptal sheath in the thin region, resulting in a successful transseptal puncture and isolation of the pulmonary veins (Supplementary material, Videos S1–S3).

To extend the diagnostics of the anomaly, the patient was referred for cardiac magnetic resonance that revealed hypertrophy of the atrial septum to 27 mm at the thickest point

(Figure 1B). The atrial septum presented a homogeneous, hyperintense signal on T1-weighted imaging, similar to the subcutaneous fat tissue (Figure 1C). The T1 relaxation time of the mass measured on the T1 map images was a maximum of 237 ms, confirming the lipomatous nature of the tissue (Figure 1D). Based on TEE and cardiac magnetic resonance, lipomatous hypertrophy of the interatrial septum was diagnosed.

LHIS is characterized by excessive adipose tissue deposition (>2 cm) in the atrial septum with typical sparing of the fossa ovalis, which presents as a characteristic hourglass-shaped image. In contrast to cardiac lipomas, the adipose tissue is not encapsulated. The prevalence ranges from 2.2% in patients undergoing multislice CT to approximately 8% in transesophageal echocardiography [1, 2]. A higher prevalence of LHIS has been associated with advanced age, obesity, female sex, and long-term corticosteroid use [3]. Although LHIS is considered a benign finding and does not require specific treatment, in some cases, it may cause cardiac arrhythmias, superior vena cava obstruction, atrioventricular block, and even sudden cardiac death [3]. The severity of these symptoms appears to be related to the size and extent of the lesion. LHIS should always be differentiated from other cardiac neoplasms and distal metastases.

Undoubtedly, a significant thickening of the interatrial septum makes the transseptal puncture procedure more challenging and risky [4]. Moreover, thick interatrial tissue can reduce catheter steerability in the left atrium. The use of echocardiographic guidance may reduce the number of periprocedural complications, especially in patients with structural alterations of the heart [5].

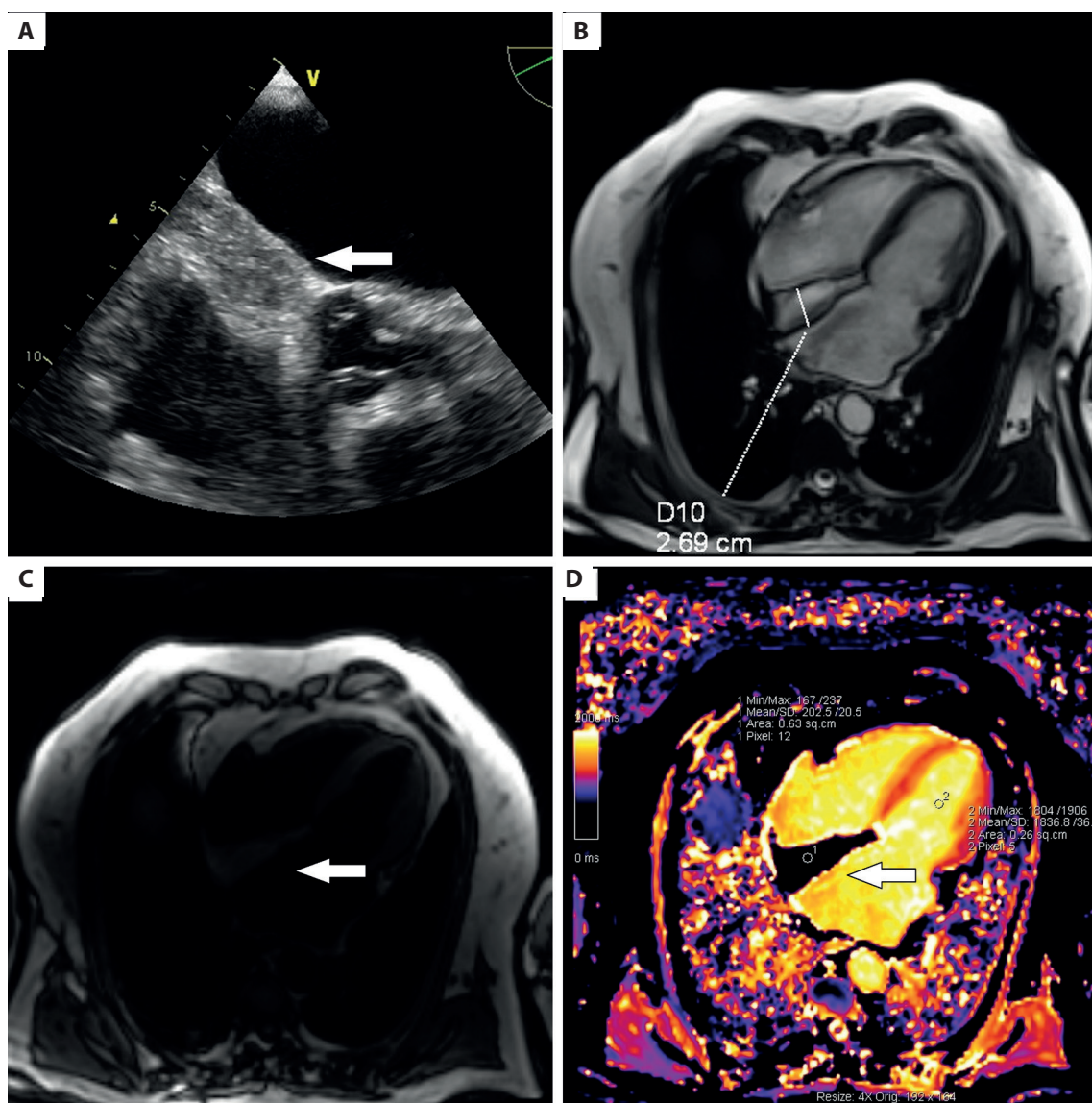


Figure 1. Pictures of the interatrial septum with lipomatous hypertrophy of the interatrial septum. **A.** Transesophageal echocardiogram, midesophageal aortic valve short-axis view. **B.** Cardiac magnetic resonance, cine four-chamber view. **C.** T1-weighted image. **D.** Native T1 mapping

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/polish_heart_journal.

Article information

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